REMARKS

This application has been reviewed in light of the Office Action dated September 5, 2002. Claims 1-75 are presented for examination. Claim 76 has been canceled, without prejudice or disclaimer of subject matter. Claims 1, 11, 13, 14, 22, 24, 25, 35, 37, 38, 46, 48, 49, 59, 61, 62, 65, 70, and 72 have been amended to define more clearly what Applicant regards as his invention. Claims 1, 14, 25, 38, 49, and 62 are in independent form. Favorable reconsideration is requested.

The Office Action rejected Claims 1-76 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,479,603 (*Stone '603*). Cancellation of Claim 76 renders its rejection moot.

As shown above, Applicant has amended independent Claims 1, 14, 25, 38, 49, and 62 in terms that more clearly define the present invention. Applicant submits that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The aspect of the present invention set forth in Claim 1 is a method of generating an image. The image is to be formed by rendering and compositing at least a plurality of graphical objects, with each object having a predetermined outline. The method comprises the step of dividing a space in which the outlines are defined into a plurality of regions, with each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof. The region outlines are substantially formed by

segments of a virtual grid encompassing the space. The method also comprises the step of manipulating the regions to determine a plurality of further regions. The further regions are dependent on the segments of the virtual grid. Each further region has a corresponding compositing expression. The method also comprises the step of classifying the further regions according to at least one attribute of the graphical objects within the further regions. The method also comprises the step of modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region compared to the corresponding compositing expression. In particular, the corresponding compositing expressions are optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, without modifying the image to be generated. The method further comprises the step of generating the image by compositing the plurality of graphical objects using each of the optimized compositing expressions.

One notable feature of Claim 1 is that the region outlines are substantially formed by segments of a virtual grid encompassing the space and modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region compared to the corresponding compositing expression. In particular, the corresponding compositing expressions are optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, without modifying the image to be generated.

As previously submitted, in Applicant's understanding, the object of *Stone*

'603 is to provide a method for accessing alternative views of an information model data structure. In view of this object, *Stone '603* discloses a method for operating in a processor-controlled machine to produce a composite view of an original, or first, image by combining the functions of multiple viewing operations and using the model data structure from which the first image was produced (referred to as "FIMDS").

In making the rejection under 35 U.S.C. § 102 (e), the Examiner states that *Stone '603* discloses in col. 4, table 1 and in lines 60 - 67, "the step of dividing a space in which [the] outlines are defined into a plurality [of] region[s] ... formed by segments of a virtual grid encompassing [the] space". Further, in the Examiner's response to arguments filed by Applicant in the Amendment dated June 19, 2002, the Examiner states that *Stone* discloses in Figs. 53-55, and in col. 44, a graphics editor having a grid feature, which the user may control to aid in the spacing and positioning of graphical objects. The Applicant assumes that the reference to *Stone* here is to Figs. 53-55 and col. 44 of US Patent No. 5,596,690 (hereinafter *Stone '690*). The Examiner further states that *Stone '690* discloses that a viewing operation associated with the viewing operation region may be implemented to modify the grid display, and moving the position over a new segment.

In Applicant's understanding, Table 1 of *Stone '603* lists viewing operations with respective abbreviations for ease of explanation. Further, col. 4, lines 60 to 67, of *Stone '603* discloses that a first viewing operation region (1VOR) in a first viewing position in the display area of the display device, is provided, where the first viewing operation region is positioned coextensively with the present image position of a first image segment of a first

image.

Applicant submits that, in general and particularly at col. 4, Table 1 and in lines 60 to 67, *Stone '603* does not disclose or even suggest, the particular claimed feature of Claim 1 that the region outlines are substantially formed by segments of a virtual grid encompassing the space.

As disclosed, for example, at page 16, lines 5 to 22 of the present specification, there is typically a trade-off between how closely region boundaries follow graphical object boundaries and the benefits obtained. The method of Claim 1 improves the efficiency of region operations by choosing horizontal and vertical segments to represent region boundaries where as many as is practical of the horizontal and vertical segments of substantially all region boundaries are in phase. In other words, the segments are to be chosen from the horizontal and vertical lines of the same grid. The grid need not be regularly spaced, nor have the same spacing horizontally and vertically, although typically it will. Such a grid 910 is shown in Fig. 22 of the present application. Further, as recited in Claim 1, the grid is virtual. That is, the grid exists in effect though not in actual form and, thus, the grid is not displayed.

In contrast, as disclosed at col. 43, lines 49 and 59, Figure 53 of *Stone '690* illustrates an image (600) containing a diagram of interrelated and connected objects (i.e., square objects represented as dark/thick lines). Figure 54 shows the objects of the image (600) scaled to appear larger. Figure 54A shows a segment of the image (600) and the viewing operation region VOR 186. In particular, as disclosed at col. 43, lines 57 and 58, Fig. 54A shows two connecting line objects 596 and 597 (i.e., represented in lighter/thinner lines). Finally, as disclosed at col.

44, line 13 to 15, of *Stone '690*, Figure 55 shows a viewing operation associated with VOR 186 that selects the square objects in Figure 53. Therefore, the line objects (e.g., 596 and 597) interconnecting the square objects of the image (600), of Figures 53 to 55, are actually graphical objects forming the image (600) and are displayed in the sub-window 225 together with the square graphical objects to form the image 600. As such, the lines objects (e.g., 596 and 597) are not virtual.

Further, the VOR 186 has an outline (i.e., darker lines), as shown in Figure 54A which is connected by a number of line objects (i.e., shown in lighter and thinner lines). Therefore, the outline of the region (i.e., VOR 186) is distinct from the line objects (e.g. 596 and 597). Although, the interconnection of the outline of the VOR 186 and the line objects may form a grid structure, when displayed, the outline is not formed by segments of a virtual grid.

Applicant submits that a first viewing operation region positioned coextensively with the present image position of a first image segment of a first image, as disclosed by *Stone '690*, does not disclose or even suggest region outlines formed by segments of a virtual grid. Further, Applicant submits that Figures 53 to 55 of *Stone '690* do not disclose or even suggest, the particular claimed limitation of the present invention, whereby the region outlines are substantially formed by segments of a virtual grid encompassing the space.

Applicant concurs with the Examiner that at col. 44, *Stone '690* discloses a graphics editor that has a "grid feature", which the user may control to aid in the spacing and positioning of graphical objects. However, as discussed at col. 44, lines 20 to 23, the grid feature of *Stone '690* is a regularly spaced pattern of dots that appears in a sub-window (e.g. 211) to aid

the user in the spacing and positioning of graphical objects. The grid feature mentioned at col. 44 has no correlation to Figures 53 to 55 (although Applicant assumes that such a grid feature -- i.e., regularly spaced pattern of dots-- could be used in the sub-window 225 to space and position the square objects and the line objects of Figures 53 to 55).

Applicant submits that the grid feature discussed in col. 44 of *Stone '690* does not disclose or even suggest, the particular feature of Claim 1 that the region outlines are substantially formed by segments of a virtual grid encompassing the space.

The Examiner further states, in making the rejection under 35 U.S.C. § 102 (e), that *Stone '603* discloses on col. 5, lines 38 to 49, a method whereby each compositing expression corresponding to a further region is modified according to a classification of the further region. Further, in response to arguments made in the Amendment dated June 19, 2002, the Examiner states that *Stone '690* discloses at col. 45, lines 1-41, "reference pointer to object data and modifying by the viewing operation or creating a copy of the model efficient for the viewing operation".

As previously submitted, in Applicant's understanding, *Stone '603* discloses at col. 5, lines 38 to 49, that image definition data defining a composite second image produced for display in a composite viewing operation region is produced according to a composite viewing operation, using size and shape dimensions of the composite viewing operation region. The composite viewing operation region is defined by a coextensively positioned portion of a first viewing operation region and the second viewing operation region, in the display area.

Further, col. 45, lines 1 to 41, of *Stone '690* discloses applying spatially and

temporally bounded changes, via a viewing operation and viewing operation region, to a model data structure. In particular, at col. 45, lines 33 to 42, *Stone '690* discloses that the method also includes changes to the model such as adding objects to the model, deleting objects from the model and replacing an existing display object representing data in the model with a different display object. Therefore, the displayed or generated image is modified through adding, deleting and replacing objects.

Applicant submits that, in general, and in particular at col. 5, lines 38 to 49, of *Stone '603* and col. 45, lines 1 to 41, of *Stone '690,* neither *Stone '603* nor *Stone '690* discloses or even suggests, the particular feature of Claim 1 of modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region, whereby the corresponding compositing expressions are optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, without modifying the image to be generated. For example, as stated at page 6, lines 10 and 11, of the present specification, Figure 4 of the present specification shows the image of Figure 3, together with the corresponding compositing operations after each of the compositing operations has been optimized. As described at page 10, lines 8 to 13, of the present specification, the compositing expressions provided in Figure 3 make no attempt to exploit the attributes (i.e., opacity properties) of the objects forming the image of Figure 3. If these opacity properties are used to simplify the compositing expressions for each region, the expressions of Figure 4 are obtained resulting in a simplification (i.e., optimization) of the rendering of regions 2, 3, 5, 6, 7, 8 and 9 compared with

Figure 3. These simplified (or optimized) compositing expressions result in far fewer pixel compositing operations being performed to produce the final picture.

Indeed, Applicant submits that *Stone '603* and *Stone '690* actually teach away from the feature of Claim 1 of eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, without modifying the image to be generated. As discussed above, *Stone '690* actually teaches adding objects to the model, deleting objects from the model and replacing an existing display object representing data in the model with a different display object, to modify the displayed image.

Nothing has been found in *Stone* '603 (nor *Stone* '690) that would teach or suggest that region outlines are substantially formed by segments of a virtual grid encompassing the space and modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression for each further region compared to the corresponding compositing expression, with the corresponding compositing expressions being optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, without modifying the image to be generated, as recited in Claim 1. Accordingly, Applicant submits that Claim 1 is patentable over *Stone '603* (and *Stone '690).*

Independent Claims 25 and 49 are apparatus and computer program product claims, respectively, corresponding to method Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1. Additionally, independent Claims 14, 38, and 62 include similar features as discussed above in connection with Claim 1.

Accordingly, Claims 14, 38, and 62 are believed to be patentable for reasons similar as those discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in the Applicant's opinion, would remedy the deficiency of the art discussed above, as references against the independent claims herein. Those claims are therefore believed to be patentable over the other art of record.

The other rejected claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R. § 1.116. Accordingly, entry of this Amendment, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicant's undersigned attorney in an effort to resolve such issues and advance the case to issue.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

Attorney for Applicant

Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY MAIN 307284

VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Twice Amended) A method of [creating] generating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said method comprising the steps of:

a dividing step, of dividing a space in which said outlines are defined into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof, wherein said region outlines are [and being] substantially formed by segments of a virtual grid encompassing said space;

a manipulation step, of manipulating said regions to determine a plurality of further regions, said further regions being dependent on said segments of said virtual grid, wherein each said further region has a corresponding compositing expression;

a classification step, of, classifying said further regions according to at least one attribute of said graphical objects within said further regions;

a modification step, of modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression, said corresponding compositing expressions being optimized by eliminating one or more objects within said further regions from one or more of said corresponding expressions, depending on said classifications, without modifying said image to be generated; and

a [composite] generation step, of generating said image by compositing said [image] plurality of graphical objects using each of said optimized compositing expressions.

11. (Amended) A method according to claim 1, wherein a wholly opaque object in said region acts to eliminate one or more objects within said further region from said compositing expressions.

13. (Amended) A method according to claim [1] 7, wherein said modifying comprises modifying a manner in which said compositing expression is evaluated without modifying said hierarchically structured representation.

14. (Twice Amended) A method of [creating] generating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said method comprising the steps of:

a dividing step, of dividing a space in which said outlines are defined into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof, wherein said region outlines are [and being] substantially formed by segments of a virtual grid encompassing said space, wherein each object has two region outlines arranged either side of said predetermined outline to thus define three regions for each said object, and wherein each said region has a corresponding compositing expression;

a classification step, of classifying said regions according to at least one

attribute of said graphical objects within said regions;

a modification step, of modifying each said corresponding compositing expression according to a classification of each said region to form an optimized compositing expression for each said region compared to said corresponding compositing expression, said corresponding compositing expressions being optimized by eliminating one or more objects within said further regions from one or more of said corresponding expressions, depending on said classifications, without modifying said image to be generated; and

a [composite] generation step, of generating said image by compositing said [image] plurality of graphical objects using each of said optimized compositing expressions.

22. (Amended) A method according to claim 14, wherein a wholly opaque object in said region acts to eliminate one or more objects within said further region from said compositing expressions.

24. (Amended) A method according to claim [14] 18, wherein said modifying comprises modifying a manner in which said compositing expression is evaluated without modifying said hierarchically structured representation.

25. (Twice Amended) An apparatus for [creating] generating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said apparatus comprising:

dividing means for dividing a space in which said outlines are defined

into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof, wherein said region outlines are [and being] substantially formed by segments of a virtual grid encompassing said space;

manipulating means for manipulating said regions to determine a plurality of further regions, said further regions being dependent on said segments of said virtual grid, wherein each said further region has a corresponding compositing expression;

classifying means for classifying said further regions according to at least one attribute of said graphical objects within said further regions;

modifying means for modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression, said corresponding compositing expressions being optimized by eliminating one or more objects within said further regions from one or more of said corresponding expressions, depending on said classifications, without modifying said image to be generated; and

[compositing] generating means for generating said image by compositing said [image] plurality of graphical objects using each of said optimized compositing expressions.

35. (Amended) An apparatus according to claim 25, wherein a wholly opaque object in said region acts to eliminate one or more objects within said further region from said compositing expressions.

37. (Amended) An apparatus according to claim [25] 31, wherein said modifying comprises modifying a manner in which said compositing expression is evaluated without modifying said hierarchically structured representation.

38. (Twice Amended) An apparatus for [creating] generating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said apparatus comprising:

dividing means for dividing a space in which said outlines are defined into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof, wherein said region outlines are [and being] substantially formed by segments of a virtual grid encompassing said space, wherein each object has two region outlines arranged either side of said predetermined outline to thus define three regions for each said object, and wherein each said region has a corresponding compositing expression;

classifying means for classifying said regions according to at least one attribute of said graphical objects within said regions;

modifying means for modifying each said corresponding compositing expression according to a classification of each said region to form an optimized compositing expression for each said region compared to said corresponding compositing expression, said corresponding compositing expressions being optimized by eliminating one or more objects within said further regions from one or more of said corresponding expressions, depending on said classifications without modifying said image to be generated; and

[compositing] generation means for generating said image by compositing said [image] plurality of graphical objects using each of said optimized compositing expressions.

46. (Amended) An apparatus according to claim 38, wherein a wholly opaque object in said region acts to eliminate one or more objects within said further region from said compositing expressions.

48. (Amended) An apparatus according to claim [38] 42, wherein said modifying comprises modifying a manner in which said compositing expression is evaluated without modifying said hierarchically structured representation.

49. (Amended) A computer program product including a computer readable medium having a plurality of software modules for [creating] generating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said computer program product comprising:

a dividing module for dividing a space in which said outlines are defined into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof, wherein said region outlines are [and being] substantially formed by segments of a virtual grid encompassing said space;

a manipulating module for manipulating said regions to determine a

plurality of further regions, said further regions being dependent on said segments of said virtual grid, wherein each said further region has a corresponding compositing expression;

a classifying module for classifying said further regions according to at least one attribute of said graphical objects within said further regions;

a modifying module for modifying each said corresponding compositing expression according to a classification of each said further region to form an optimized compositing expression for each said further region compared to said corresponding compositing expression, said corresponding compositing expressions being optimized by eliminating one or more objects within said further regions from one or more of said corresponding expressions, depending on said classifications, without modifying said image to be generated; and

[compositing] a generating module for generating said image by compositing said [image] plurality of graphical objects using each of said optimized compositing expressions.

59. (Amended) A computer program product according to claim 49, wherein a wholly opaque object in said region acts to eliminate one or more objects within said further region from said compositing expressions.

61. (Amended) A computer program product according to claim [49] 55, wherein said modifying comprises modifying a manner in which said compositing expression is evaluated without modifying said hierarchically structured representation.

62. (Amended) A computer program product including a computer readable medium having a plurality of software modules for [creating] generating an image, said image to be formed by rendering and compositing at least a plurality of graphical objects, each said object having a predetermined outline, said computer program product, comprising:

a dividing module for dividing a space in which said outlines are defined into a plurality of regions, each said region being defined by at least one region outline substantially following at least one of said predetermined outlines or parts thereof, wherein said region outlines are [and being] substantially formed by segments of a virtual grid encompassing said space, wherein each object has two region outlines arranged either side of said predetermined outline to thus define three regions for each said object, and wherein each said region has a corresponding compositing expression;

a classifying module for classifying said regions according to at least one attribute of said graphical objects within said regions;

a modifying module for modifying each said corresponding compositing expression according to a classification of each said region to form an optimized compositing expression for each said region compared to said corresponding compositing expression, said corresponding compositing expressions being optimized by eliminating one or more objects within said further regions from one or more of said corresponding expressions, depending on said classifications, without modifying said image to be generated; and

[compositing] a generation module for generating said image by compositing said [image] plurality of graphical objects using each of said optimized compositing expressions.

65. (Amended) [method] A computer program product according to claim 62, wherein said grid is irregularly shaped.

70. (Amended) A computer program product according to claim 62, wherein a wholly opaque object in said region acts to eliminate one or more objects within said further region from said compositing expressions.

72. (Amended) A computer program product according to claim [62] 66, wherein said modifying comprises modifying a manner in which said compositing expression is evaluated without modifying said hierarchically structured representation.

76. (Cancelled)